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ABSTRACT

This instructor's guide accompanies the self-paced student training modules on cement finishing, available separately as CE 031 576. Introductory materials include a description of the components of the pre-apprenticeship project, discussion of teacher's role in students' completion of the modules, and scope and contents of Phase 2 training. Each of the 20 modules are briefly summarized according to this format: number of new vocabulary words; goal; performance indicators; overview and suggestions; description of any assignment(s) and/or job sheet(s) and listing of materials, tools, and equipment necessary to complete them; and supplementary references. An annotated bibliography contains references for further study and/or clarification of a topic. (YLB)

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PRE-APPRENTICESHIP
PHASE 2 TRAINING
Instructor's Guide

Cement Finishing

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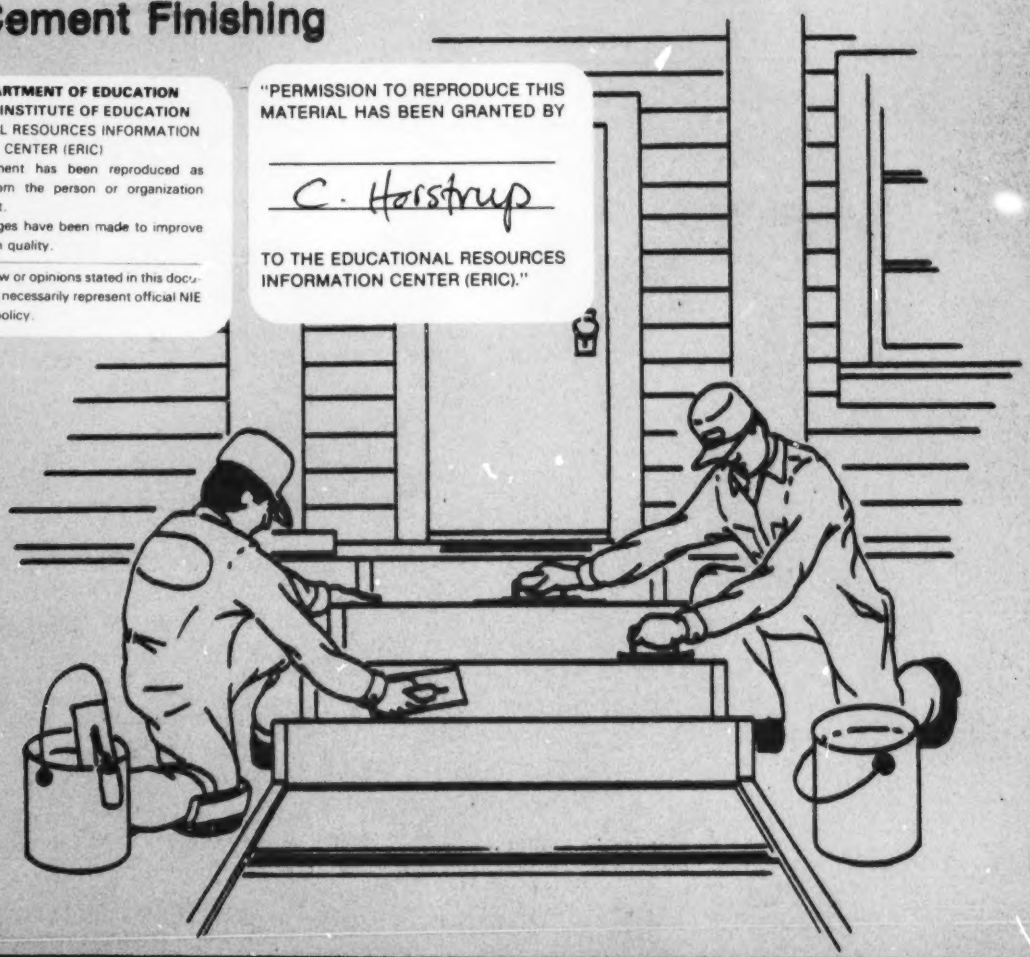

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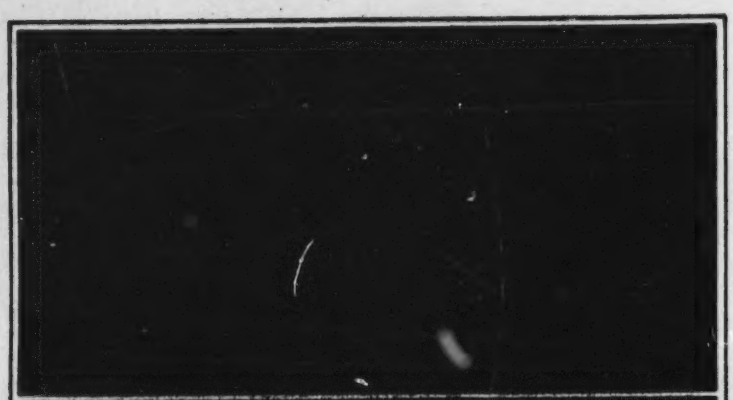

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Lane Community College

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Office of the President

July 27, 1981

On behalf of Lane Community College, I wish to express our pride and gratitude for the opportunity to participate in the development of the Pre-Apprenticeship training materials. We also wish to commend the Oregon Department of Education for its original concept and continued support; and, the Educational Linkages Component of the CETA Governor's Grant for funding.

The goals of this project are many, but none are more important than that of producing valid, understandable vocational curriculum material. We congratulate the tradespeople and production staff for thier accomplishments.

Finally, I recommend this material to anyone exploreing Pre-Apprenticeship as an entry into the vocational work world, with the hope and belief that it will go a long way toward producing skilled craftspeople who are dedicated to their work.

Sincerely,

Eldon G. Schafer

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Phase II

INTRODUCTION

This is the second phase of a designed multi-phase project of pre-apprenticeship study. Phase II begins in earnest the development of manipulative skills essential to the trade. It re-introduces and elaborates on many of the tools, materials and equipment set forth in Phase I, and introduces projects and assignments designed to build trade knowledge and trade manipulative skills.

The project consists of three major components:

1) INSTRUCTOR'S GUIDE, containing a brief summary of each of the trade modules, including the materials, tools and equipment necessary to complete the Job Sheets and/or Assignments; an annotated bibliography for further study and/or clarification of a topic.

2) Self-paced LEARNING MODULES for student study. The modules are designed to impart trade knowledge and skills to the student. Each module is comprised of the following:
   a) Cover Sheet--lists module title, goals, performance indicators
   b) Study Guide--gives directions for completion of module
   c) Introduction (optional)--explains why the module is important
   d) Vocabulary--lists and defines any new trade terms or technical words necessary for understanding the module's content
   e) Supplementary References--details where to go for further study
   f) Information--provides information and graphics covering the module's topic(s)
   g) Self Assessment (optional)--provides students an opportunity to test their comprehension
   h) Assignment (optional)--enables students to research further into the topic
   i) Job Sheet (optional)--lists materials and tools necessary to complete the tasks which are designed to develop manipulative skill
   j) Post Assessment (optional)--enables the instructor to test student comprehension

3) SURVIVAL or COPING SKILLS MODULES have been developed to promote

social skills development. These 43 modules elaborate on the topics introduced in Phase I and cover such topics as: Losing your Driver's License, Death in the Family, Divorce, Time Management, Buying a Home, Maintaining Credit, and other social skills which have a bearing on the quality of work life and personal satisfaction.

IMPLEMENTATION

It is essential during Phase II that the student develop the skills necessary to perform the tasks of the trade as outlined and demonstrated in the modules. For this reason, the instruction should be conducted by a skilled craftsperson from the trade or occupation who has the necessary teaching skills.

At the completion of Phase II, the trainee will have enough experience with the occupation to decide whether to continue with the training into Phase III, which will ultimately represent a career choice and entrance into apprenticeship.

Recommendations for successful module completion

This phase of pre-apprenticeship study requires the student to develop job skills which will enable him or her to be a productive worker or to decide against pursuing the trade as a viable career choice. To that end, the instructor should:

1) Realize that skill-building and development is dependent on repeated physical performance and self-confidence.

2) Provide a setting in which students are encouraged to develop skills at their own individual pace. Assessments are designed as tests of comprehension, not as tests of skills or trade abilities.

3) Coordinate the use of materials, tools and equipment so that each student can fulfill his or her potential.

4) Ensure that each student practices the trade skills in the accepted manner, and practices enough to develop skills to a professional trade standard.

5) Make arrangements for visitations (to stores, shops, jobsites, etc.) and ensure that students participate fully.

6) Grade or comment on individual Assignments and Assessments, to ensure students are aware of their progress.

7) Ensure that the trade skills and knowledge presented in one module are fully understood by the student before allowing him or her to continue to subsequent modules.

SCOPE

Trades developed for study in Phase II include:

Drywall	Bricklaying
Painting	Parts Counter
Plumbing	*Electrical
Floor Laying	*Welding
Plastering	*Auto Mechanic
Cement Finishing	*Carpentry
Tilesetting	

* Adapted from previously developed ILS material.

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MODULE TITLE: CONCRETE CHARACTERISTICS AND PROPERTIES

NUMBER IN SERIES: 1st in 20

NEW VOCABULARY WORDS: 11

GOAL:

The student will be able to explain what concrete is made from and the properties desired in plastic and hardened concrete.

PERFORMANCE INDICATORS:

The student will demonstrate a knowledge of the topic by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers the properties that are found in concrete. The instructor may arrange for a class visit for the Assignment.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to visit a redi-mix plant and write a report on how concrete is mixed and the different aggregates used. The student is also required to visit a construction site and list different ways concrete is used, then to discuss in class the properties desired in concrete.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, Portland Cement Assoc., 1965, pp. 5-16

Concrete Construction Handbook, McGraw-Hill, 1968, Unit 1, pp. 3-13.

MODULE TITLE: CONCRETE TYPES AND USES

NUMBER IN SERIES: 2nd of 20

NEW VOCABULARY WORDS: 12

GOAL:

The student will be able to explain the common types and uses of concrete.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing a Self Assessment, 2 Assignments and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers the common types and common uses of concrete.

The instructor may arrange for a class visit for the Assignments, and combine this Assignment with that of the first module.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

Similar to Assignment for first module, the student is to visit a redi-mix plant and write a report on the types of concrete mixed.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 28-30.

MODULE TITLE: AIR-ENTRAINED CONCRETE

NUMBER IN SERIES: 3rd of 20

NEW VOCABULARY WORDS: 7

GOAL:

The student will develop an understanding of air-entrained concrete, how it is made and its major advantages.

PERFORMANCE INDICATORS:

The student will complete successfully a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers the manufacture of air-entrained concrete, its uses and advantages.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report on the advantages of using air-entrained concrete and how it resists freeze/thaw action.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 71-80

Concrete Construction Handbook, Units 4-8, 46-50

MODULE TITLE: AGGREGATES AND WATER

NUMBER IN SERIES: 4th of 20

NEW VOCABULARY WORDS: 7

GOAL:

Upon completion of this module, the student will be able to explain the function of aggregates and water in concrete.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the subjects by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers aggregates and water--the two ingredients that are combined with cement to form concrete.

The instructor may combine the Assignment with the first and second modules if the redi-mix plants have gravel stockpiles nearby.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to visit a sand and gravel company storage yard and write a report on the different types and sizes of aggregates and how they were stockpiled. The student should take a pencil and paper for notes.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 45-70

Concrete Construction Handbook, Unit 2, pp.2-3

MODULE TITLE: DESIGN OF CONCRETE MIXTURES

NUMBER IN SERIES: 5th of 20

NEW VOCABULARY WORDS: 12

GOAL:

The student will be able to explain the unit weight method of designing economical concrete mixes, and will be able to explain the relationship of the ratio of the ingredients to the workability and quality of the concrete product.

PERFORMANCE INDICATORS:

The student will show a knowledge of the topic by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module describes the unit weight method of designing concrete mixtures.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a one-page explanation of the unit weight method of selection and design of a concrete mixture.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 83-101

Concrete Construction Handbook, Unit 11, pp. 3-33

MODULE TITLE: CONCRETE REINFORCING

NUMBER IN SERIES: 6th of 20

NEW VOCABULARY WORDS: 10

GOAL:

The student will develop an understanding of how and why reinforcement is used in concrete.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module discusses the important role reinforcing contributes to the strength of concrete.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to discuss and illustrate by drawings the purposes of reinforcing concrete and the methods for placing bars and fabric.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 209-220.

MODULE TITLE: LAYOUT

NUMBER IN SERIES: 7th of 20

NEW VOCABULARY WORDS: 13

GOAL:

The student will develop an understanding of the importance of laying out jobs properly.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing a Self Assessment, 2 Assignments, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers the layout of concrete work, the importance of placing a slab in the proper place, and for proper drainage.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report on why it is important to lay out a job properly; also to discuss two ways to determine if corners are square for a rectangular or square slab.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

Using the spirit level and straightedge, the student is required to drive 4 stakes, 10 feet apart and at the same level, to double-check by leveling back to the first stake.

Requires: hammer, spirit level, straightedge, wooden stakes

SUPPLEMENTARY REFERENCES:

Incentive Apprenticeship Training for Cement Masons, National Association of Homebuilders, 1979, Unit 9, pp. 6-17.

MODULE TITLE: BUILDING SIMPLE FORMS

NUMBER IN SERIES: 8th of 20

NEW VOCABULARY WORDS: 5

GOAL:

The student will be able to build simple forms.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the topic by completing a Self Assessment, an Assignment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report on all the safety precautions that need to be taken when using a power saw.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student is required to build a rectangular form, 6' x 8', stake and nail properly.

Requires: hammer, saw, duplex headed nails, 4 pcs. 8' 2 x 4s, 10 wood stakes

SUPPLEMENTARY REFERENCES:

Incentive Apprenticeship Training, Unit 10, pp. 1-15

MODULE TITLE: ESTIMATING

NUMBER IN SERIES: 9th of 20

NEW VOCABULARY WORDS: 5

GOAL:

The student will be able to explain the method of figuring the amount of concrete needed for a job.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing a Self Assessment, 2 Assignments and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module explains the different methods used to determine the amount of concrete needed for a job.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to discuss the different methods of estimating concrete needed for a job. The student is also required to use a small concrete calculator to estimate the amount of concrete needed for different sizes of jobs.

Requires: small concrete calculators (Redi-mix plants give them out free)

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide

MODULE TITLE: MIXING CONCRETE

NUMBER IN SERIES: 10th of 20

NEW VOCABULARY WORDS: 10

GOAL:

The student will be able to explain the methods of specifying, producing and controlling ready-mixed concrete. He or she will also be able to outline the necessary steps for mixing quality concrete on the job.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the topic by successfully completing a Self and Post Assessment, 3 Assignments and a Job Sheet.

OVERVIEW AND SUGGESTIONS:

This module covers mixing concrete on-the-job and at a plant.
The instructor may combine the Assignment with that for the 1st and 2nd modules.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to:

1) Tour a ready-mix concrete plant
2) Discuss quality ready-mixed concrete with plant operator
3) Write a short paper comparing the qualities of job-mixed and plant-mixed concrete

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student is required to mix a batch of concrete.

Tools	Materials
square-nosed shovel	sack portland cement
wheel barrow	2¼ cu. ft. sand
stiff brush	3 cu. ft. 1" max. aggregate
	5 gal. water
	6 cardboard or wood pier forms

Place concrete in pier pads and finish, clean tools and equipment

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 119-147.

MODULE TITLE: TESTING PLASTIC CONCRETE

NUMBER IN SERIES: 11th of 20

NEW VOCABULARY WORDS: 12

GOAL:

The student will be able to explain how to perform the standard tests to determine the slump and strength of plastic concrete.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the topic by successfully completing a Self Assessment, an Assignment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module discusses the testing of plastic concrete.

The instructor may combine the Job Sheet with that of the 10th module.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to:

1) Visit a testing laboratory in the area
2) Discuss with the class different molds and methods he or she saw being used.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student is required to make a slump test of concrete.

Requires: wheelbarrow, slump cone, tamping rod, shovel, measuring tape.

Slump cone and tamping rod may be borrowed from testing lab.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 103-117.

MODULE TITLE: PLACING CONCRETE

NUMBER IN SERIES: 12th of 20

NEW VOCABULARY WORDS: 7

GOAL:

The student will be able to explain the proper procedures for placing concrete.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the topic by successfully completing a Self Assessment, an Assignment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers the placing of concrete after it is mixed.

The instructor may combine the Job Sheet of this module with those of modules 8 and 10.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to visit a construction site where concrete is being placed; also to call a redi-mix plant for information on where deliveries are being made.

The student will then write a report on how concrete was moved, placed and consolidated in the forms.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student is required to place concrete (mixed in module 10) into a form, and consolidate it with a shovel.

SUPPLEMENTARY REFERENCES:

Concrete Construction Handbook, Unit 24, pp. 3-23.

Concrete Technology Instructor's Guide, pp. 159-167.

MODULE TITLE: CONSOLIDATE AND STRIKE OFF

NUMBER IN SERIES: 13th of 20

NEW VOCABULARY WORDS: 5

GOAL:

The student will learn the proper procedures for consolidating and striking off concrete after it has been placed in a form.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the topic by successfully completing a Self Assessment, Assignment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

The instructor may combine a class visit for this Assignment with the Assignment for module 12.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to visit a construction site where concrete is being placed and to write a report of the different methods of consolidation and striking off that were used.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student is required to place concrete in a formr, consolidate and strike off.

Requires: shovel, straightedge (a long 2" x 4" will work well), a wooden form, wheel barrow full of concrete.

SUPPLEMENTARY REFERENCES:

Incentive Apprenticeship Training, Unit 11.
Concrete Technology Instructor's Guide, p. 179.

MODULE TITLE: FINISHING CONCRETE

NUMBER IN SERIES: 14th of 20

NEW VOCABULARY WORDS: 6

GOAL:

Upon completion of this module, the student will be able to explain and demonstrate the proper procedure for finishing concrete.

PERFORMANCE INDICATORS:

The student will show knowledge of the topic by successfully completing a Self Assessment, 2 Assignments, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

This module covers the finishing of concrete after it has been placed, consolidated and struck off. The instructor may combine the Assignment and Job Sheet with modules 12 and 13.

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to visit a construction site where concrete has been placed and is being finished, and to write a report on the different operations performed for finishing.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

After placing, consolidating and striking off the concrete, the student is required to bull float, float, edge and finish a slab by following steps presented in this module.

Requires: bull float, hand float, 2 steel trowels, edger (also slab)

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 179-183.

Incentive Apprenticeship Training, Units 3, 4 and 5.

MODULE TITLE: CURING

NUMBER IN SERIES: 15th of 20

NEW VOCABULARY WORDS: 6

GOAL:

The student will develop an understanding of the acceptable methods of curing concrete.

PERFORMANCE INDICATORS:

The student will show an understanding of the methods of curing concrete by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report on the different methods of water or moist curing of concrete, and explain how each is accomplished.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 185-190.

Concrete Construction Handbook, Unit 29, pp. 1-5.

MODULE TITLE: FORMING AND FINISHING STEPS

NUMBER IN SERIES: 16th of 20

NEW VOCABULARY WORDS: 7

GOAL:

The student will develop an understanding of procedures for forming and finishing steps.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing a Self Assessment, 2 Assignments, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report describing the "early stripping" and the "late stripping" methods of finishing steps; also to describe the method used to add steps to an existing building.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

From a blueprint of a house with steps, the student is required to sketch an isometric drawing of the steps, and to build forms for the steps.

Requires: residence blueprint
paper, pencil
lumber, tools and hardware described in this module

SUPPLEMENTARY REFERENCES:

Incentive Apprenticeship Training, Unit 12.

MODULE TITLE: COLD WEATHER PLACING, FINISHING AND CURING

NUMBER IN SERIES: 17th of 20

NEW VOCABULARY WORDS: 4

GOAL:

The student will be able to explain the methods of protecting concrete while placing, finishing and curing during cold weather.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing a Self Assessment, 2 Assignments and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report listing several things to do before and after placing concrete in cold weather. Also, the student is required to explain the methods for obtaining high early-strength concrete.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Technology Instructor's Guide, pp. 235-246.

Concrete Construction Handbook, Unit 5, p. 9; Unit 30, pp. 7-13.

MODULE TITLE: HOT WEATHER PLACING, FINISHING AND CURING

NUMBER IN SERIES: 18th of 20

NEW VOCABULARY WORDS: 4

GOAL:

The student will be able to explain the recommended practices when placing, finishing and curing concrete in hot weather.

PERFORMANCE INDICATORS:

The student will complete a Self Assessment, 2 Assignments and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to write a report on the curing of concrete in hot weather, and to discuss with the class steps to take before placing and finishing concrete in hot weather.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Concrete Construction Handbook, Unit 5, p. 9; Unit 30, pp. 4, 6, 7.

Concrete Technology Instructor's Guide, pp. 221-233.

MODULE TITLE: FORMING AND FINISHING CURBS

NUMBER IN SERIES: 19th of 20

NEW VOCABULARY WORDS: 2

GOAL:

Upon completion of this module, the student will be able to explain and demonstrate the steps necessary to form and finish curbs and gutters.

PERFORMANCE INDICATORS:

The student will show an understanding of the topic by successfully completing an Assignment, a Job Sheet and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to discuss with the class those steps necessary to form, finish, and cure curbs and gutters.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

The student is required to build a 4-foot long curb and gutter form from Fig. 1 in the Information section.

Requires:	2 4' long 1" x 6"	duplex nails
	4' long 1' x 8"	hammer
	6' long 1" x 4"	handsaw
	10' long 1" x 2"	maul

SUPPLEMENTARY REFERENCES:

Concrete Construction Handbook, Unit 26, p. 27.

Incentive Apprenticeship Training, Unit 12.

MODULE TITLE: PATCHING

NUMBER IN SERIES: 20th of 20

NEW VOCABULARY WORDS: 3

GOAL:

The student will develop an understanding of the methods used for patching and repairing concrete.

PERFORMANCE INDICATORS:

The student will demonstrate knowledge of the topic by successfully completing a Self Assessment, an Assignment and a Post Assessment.

OVERVIEW AND SUGGESTIONS:

ASSIGNMENT(S) DESCRIPTION AND MATERIALS REQUIRED:

The student is required to sketch, demonstrate or describe the proper procedures for patching concrete. Include:

depth and angle of cut, surface preparation, wetting, grouting (mix and application procedure), concrete mix and slump, placing and finishing, curing.

JOB SHEET DESCRIPTION AND MATERIALS AND TOOLS REQUIRED:

None.

SUPPLEMENTARY REFERENCES:

Incentive Apprenticeship Training, Unit 14.

Concrete Construction Handbook, Unit 48, pp. 5, 15, 16.

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CONCRETE CONSTRUCTION HANDBOOK
Joseph J. Waddell, Ed.
Riverside Division, American Cement Corp. (Riverside, CA)
McGraw-Hill Book Co.
(1968)

This is a well illustrated book which is highly technical in nature. Its intended audience is someone with an engineering background.

CONCRETE TECHNOLOGY INSTRUCTOR'S GUIDE
Portland Cement Association
33 West Grand.Ave.
Chicago Ill. 60610

Covers the basics of concrete placement and tooling, selection, etc. Contains a guide along with expanded related information. Explains step-by-step methods but is short on related graphics.

INCENTIVE APPRENTICESHIP TRAINING FOR CEMENT MASONS
National Association of Home Builders
(Manpower Development and Training Dept.)
15th and M Streets, N.W.
Washington, D.C. 20005

Covers tools, materials, processes, repairs, finishes, math and blueprint. Complete with skill and knowledge tests, tools and terms. Can be used by student with minimal instructor help; excellent "how to" graphics.